REMARKS

This amendment is responsive to the Office Action mailed May 14, 2004. Original Claims 1-3, 7, 9-15 and 23-29 are under examination in the present action. Claims 4-6, 8, 16-22 and 30-47 have been withdrawn from consideration as being drawn to an unelected Invention. Claims 1-3, 7, 9-15 and 23-29 stand rejected. The specification has been objected to. No claim has been allowed.

1. Applicants are grateful for the consideration and entry of the Information Statements submitted on April 30, 2001 and June 27, 2002.

2. The Specification was objected to for failing to provide a reference to the prior application as required by 35 U.S.C. 120. In response thereto, Applicants have amended the specification of the instant application by inserting the appropriate recitation as the first sentence of the specification.

The specification was also objected to for lacking a Brief Description of the Several Views of the Drawing(s) as set forth in 37 C.F.R. 1.74. Applicants assert that the instant application does not contain any drawings and does not describe a figure for which a drawing would be required. Applicants direct the Examiner to the language of 37 C.F.R. 1.74, which unambiguously requires a brief description, "***when*** there are drawings." Applicants contend that the objection to the specification for not be in compliance with 37 C.F.R. 1.74 is improper and should be withdrawn.

Applicants submit that the specification is now in order and respectfully request the withdrawal of all objections to the specification.

3. The instant application was found to be not fully in compliance with the sequence rules, 37 C.F.R. §1.821-1.825. In response thereto, Applicants submit an amended paper sequence

listing. Since the Applicants did not prepare the initial listing, an amended CFR, a second copy of the attached paper sequence listing and an attestation that "the CFR and paper version of the Sequence Listing are identical" have been submitted on the same day as this reply by the law firm that prepared the initial listing. Applicants contend that no new matter has been introduced in the amended sequence listing. Applicants respectfully request acceptance and entry of the amended sequence listing.

4. Claims 1-3, 7, 9-15 and 23-29 have been objected to for encompassing unelected inventions. Without conceding the truth of this objection, Applicants have amended claims 1-3 and 13 to better define the linking relationship between the species of the instant application. Applicants contend that the prior art only discloses modified bovine PTH analogs that selectively bind to the PTH2 receptors. Pending claims 1-3, 7, 9-15 and 23-29 are all directed human PTH and PTHrP analogues that selectively bind to the PTH2 receptor which is consistent with Applicants' election in response to the restriction requirement filed January 23, 2004. As such, limiting the claims to the peptide corresponding to SEQ ID NO:16 is unwarranted. Applicants respectfully request that the objection to claims 1-3, 7, 9-15 and 23-29 be withdrawn.

5. Claims 1-3, 7, 9-15 and 23-29 stand rejected under 35 U.S.C. 112, first paragraph, "as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains... to make and/or use the invention." Specifically, the Examiner states enablement is not achieved since "the disclosure does not contain a description of experiments in which the binding assays were performed using the PTH2 receptor ligands." Applicants respectfully disagree. As stated on page 21, the cell culture used by the Applicants employed stably transfected HEK-293/BP-16 cells ***which express the***

hPTH2 receptor. As stated on page 22, line 14, "the binding assay is conducted with various peptides of the invention." Applicants contend that one skilled in the art would be able to determine, based on the specification, that the claimed peptides exhibited an affinity to bind to the PTH2 receptor.

Once a particular peptide is known to selectively bind to the PTH2 receptor, the Applicants tested those peptides using two additional assays described on page 22, line 18 to page 23, line 36, to determine "the ability of the peptides of the invention to induce a biological response." As stated on pages 3-4 of the instant specification, PTH2 receptor activates both cAMP and $[Ca^{2+}]$ intracellular signaling pathways. At page 22, beginning at line 18, Applicants provide a detailed description of an adenylyl cyclase assay to measure the ability of the peptides of the invention to stimulate adenylate cyclase by measuring the level of the synthesis of cAMP in the prepared cell culture. The assay used by the Applicants was commonly-known and described in the prior art in Rodan, et al., Journal of Clinical Investigation, 72 (1983):1468-1511 and Goldman, et al., Endocrinology, 123 (1988):1468. On page 23, at line 7, Applicants provide a detailed procedure to measure the intracellular Ca^{2+} $[Ca^{2+}]$ in the cell culture exposed to the peptides of the present invention. Based on the results of the aforementioned assays, Applicants contend that the specification provides sufficient instruction for one skilled in the art to determine which of the peptides of the instant application "agonists" are and which are "antagonists". Applicants respectfully request that the Examiner provide evidence that the described assays do not enable one skilled in the art to practice the claimed invention, or if no such data is available, withdraw the 112, first paragraph rejection, based on the lack of a description of experiments to determine the binding ability of the claimed compounds.

The Examiner further states that the application is not enabling since "experiments in which the synthesized analogues were compared to other PTH receptor drugs for their ability to stimulate the receptor or to antagonize known agonists" were not described. The Examiner does not provide a reason as why such information is required to enable the invention of the instant application. When rejecting a claim under the enablement requirement of section 112, the examiner bears the "initial burden of setting forth a reasonable explanation as to why [he/she] believes that the scope of protection provided by [the] claim is not adequately enabled by the description of the invention provided in the specification." *In re Wright*, 999 F.2d 1557, 1562, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993). To object to a specification on the grounds that the disclosure is not enabling with respect to the scope of a claim sought to be patented, the examiner must provide evidence or technical reasoning substantiating those doubts. *See* MPEP Section 2164.04. The case law makes clear that properly reasoned and supported statements explaining any failure to comply with Section 112 are a requirement to support a rejection. *In re Wright*, 999 F.2d 1557, 1562, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993). Applicants respectfully assert that the Examiner must either provide evidence substantiating the need for comparative data, or, absent such evidence, withdraw the rejection under 35 U.S.C. 112, first paragraph, for lacking such data.

6. Claims 1-3, 7, 9-15 and 23-29 were also under 35 U.S.C. §112, first paragraph, for containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In support thereof, the Examiner identifies the follow deficiencies: 1). the specification does not teach

functional or structural characteristics of all compounds and all polypeptides encompassed by the claims and 2). One polypeptide PTH analogue (SEQ ID NO:16) is not adequate written description of an entire genus of functionally equivalent polypeptides and compounds. Applicants respectfully disagree.

The description requirement is simply that the claimed subject matter must be described in the specification. *See* MPEP 2163-2163.07(b)[1]. It is not necessary that the application describe the claim limitations exactly, but only so clearly that persons of ordinary skill in the art would recognize from the disclosure that applicant's invention included those limitations. *In re Smythe*, 480 F.2d 1376, 178 USPQ 179 (CCPA 1973). Any analysis of compliance with 35 U.S.C. 112 must begin with an analysis of the claims to determine exactly what subject matter they encompass. The subject matter there set out must be presumed, in the absence of evidence to the contrary, to be that which the applicant regards as his invention. *In re Moore*, 439 F.2d 1232, 169 USPQ 236 (CCPA 1971). Claim 1 is directed to "a PTH analogue or a truncated PTH analogue or a pharmaceutically acceptable salt thereof that selectively binds to the PTH2 receptor." A genus of a preferred PTH analogue is given at page 5, line 8 to page 7, line 2, a second genus on page 7, line 3 to page 9, line 10, a third genus on page 9, line 11 to page 11, line 17, a fourth genus on page 11, line 36 to page 14, line 8 and a fifth genus on page 14, line 17 to page 16, line 23. What is meant by a "truncated analogue" is discussed on page 19, lines 28-31. The Applicants discuss what entails a pharmaceutically acceptable salt on page 23, line 37 to page 24, line 8. Applicants describe what a PTH2 receptor is at page 1, lines 16-21 and on page 3, line 8 to page 4, line 13 how such an analogue

[1] As stated in *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d 1555, 19 USPQ2d 1111, 1114, "the 'written description' requirement most often comes into play where claims not presented in the application are presented thereafter.

"selectively binds" on page 4, lines 23 to 35. Applicants contend that claim 1 meets the written description requirement of §112, first paragraph.

Applicants contend that the terms "agonist" and "antagonist" are known by those skilled in the art, having been found in 16,830 and 22,971 U.S. patents. In addition, Applicants discuss PTH2 agonists at page 3, lines 27-35 and PTH2 antagonists on page 17, lines 9-24. Applicants contend that claims 2 and 3 are fully supported by the specification. Claims 4-6, 8 and 16-47, which are all directed to methods of medicinal treatment, are fully supported by the specification at page 17, line 9, to page 18, line 12 and at page 23, line 37 to page 26, line 17. Applicants contend that these claims meet the requirements of 112, first paragraph. Claims 7, 9, 10, 13 and 14 are discussed in detail on pages 5 to 17 and 18-20. A procedure for making said peptides was known in the prior art in Stewart, J.M. et al., Solid Phase Synthesis (Pierce Chemical Co., 2nd ed., 1984). Applicants respectfully request withdrawal of the rejection of claims 2-10, 13, 14 and 16-47, under §112, first paragraph.

With respect to claims 11, 12 and 15, which are directed to novel compounds, the Applicants are at a loss as to why the Examiner is of the opinion that these claims are not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. It well established that "without a reason to doubt the truth of the statements made in the patent application, the application must be considered enabling. *In re Wright*, 999 F.2d 1557, 1562, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993); *In re Marzocchi*, 439 F.2d 220, 223, 169 USPQ 367, 369 (CCPA 1971). The burden placed on the examiner is reflected in the MPEP Section 706.03. Absent evidence to the contrary, it is improper for the Examiner, as she

has done in this instance, to doubt that the compounds of claims 11, 12 and 15 lacked the claimed utility, i.e., the ability to bind the PTH2 receptor. As such the rejection of these claims was clearly erroneous and the rejection thereof must be withdrawn.

The examiner has the initial burden of presenting evidence or reasons why persons skilled in the art would not recognize in an applicant's disclosure a description of the invention defined by the claims. *In re Wertheim*, 541 F.2d 257, 265, 191 USPQ 90, 98 (CCPA 1976); *Ex parte Sorenson*, 3 USPQ2d 1462, 1463 (Bd. Pat. App. & Inter. 1987). *See* MPEP 2163.04. The Examiner's argument that the written description requirements are not met since "the specification does not teach functional or structural characteristics of **all** compounds and **all** polypeptides" is contrary to established authority. It is not necessary that the application describe the claim limitations exactly, but only so clearly that persons of ordinary skill in the art would recognize from the disclosure that applicant's invention included those limitations. *In re Smythe*, 480 F.2d 1376, 178 USPQ 179 (CCPA 1973). With respect to the Examiner's second reason supporting her §112, first paragraph rejection, Applicants note that they have provided five genus formulae as well as 86 specific examples, contrary to the Examiner's opinion.

Applicants contend that they have met the requirements of *Vas-Cuth, Inc. v. Mahurkar*, 19 USPQ2d 1111 as detailed above by providing a detailed description of the invention (compounds according to 5 genus formulae as well as 86 specific examples), a detailed description to make the claimed compounds, a detailed description to determine the binding ability of the claimed compounds and a detailed description to determine the biological activity of the claimed compounds. Applicants contend that the Examiner has not met her burden of "presenting evidence or

reasons why persons skilled in the art would not recognize in an applicant's disclosure a description of the invention defined by the claims" as required under MPEP 2163.04. Applicants further contend that they have fulfilled the requirements of §112, first paragraph. As such, the rejection of claims 1-3, 7, 9-15 and 23-29 under 35 U.S.C. 112, first paragraph, must be withdrawn.

Applicants respectfully submit that the claims are in a condition for allowance and notification to that effect is respectfully requested. Examiner Wegert is invited to telephone Applicant(s) attorney at (508) 478-0144 to facilitate prosecution of this application.

Please apply any charges or credits to Deposit Account No. 50-0590 referencing attorney docket number 073/US/PCT/US.

Respectfully submitted,

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